



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/699,819

11/04/2003

Jang-Kun Song

6192.0134.D1

4463

7590

05/05/2004

McGuireWoods LLP  
Suite 1800  
1750 Tysons Boulevard  
McLean, VA 22102

EXAMINER

QI, ZHI QIANG

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Applicati n No.</b>	<b>Applicant(s)</b>	
	10/699,819	SONG ET AL.	
	<b>Examin r</b>	<b>Art Unit</b>	
	Mike Qi	2871	

**-- The MAILING DATE of this c mmunication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 23-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 23-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/559,483.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>11/4/03</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Specification*

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,278,503 (Nishikawa et al).

Claim 23, Nishikawa discloses (col.1, line 15 – col.9, line 23; Figs. 8A, 8B) that a method of fabricating a liquid crystal display comprising:

- forming a gate line (51) and gate electrode (52), i.e., a gate line assembly on a first substrate (50);
- depositing a gate insulating layer covering the gate lines, that means depositing a gate insulating layer onto the first substrate with the gate line assembly;
- the TFT structure must have a semiconductor pattern formed on the gate insulating layer, and the semiconductor pattern is covered with the gate electrode; and the source/drain electrodes overlapped with side edges of the

semiconductor pattern; and the data lines (57) crossing the gate lines (51); and a protective layer such as interlayer insulating layer (54) functions as a passivation layer formed on the data lines (57), the semiconductor pattern and gate insulating layer; that is a conventional structure of a liquid crystal display.

Although Nishikawa does not expressly disclose that forming the protective layer and the gate insulating layer except some portion of the drain electrode by etching, that means forming opening; and the pixel area forming a protrusion pattern, therefore, the pixel electrode at the pixel area having opening pattern and the pixel electrode covers the protrusion pattern.

However, Nishikawa discloses (col.8, line 63 – col.9, line 23; Figs.8A, 8B) that the end portions of the pixel electrodes (6) protrude upward (forming an opening of a pixel electrode, and the pixel electrode is connected to the drain electrode), and the Fig.8B shows the pixel electrodes (6) partially cover the protrusion, and pixel electrode is connected to the drain electrode, so that would contact the drain electrode, such that the orientation control slope portions (7a, 7b) are formed in the orientation control film covering those end portions, therefore, the orientation of the liquid crystal molecules would be controlled on both sides of the protruding portion, and obtaining a wide viewing angle.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange the pixel electrode having opening and protrusion, and

Art Unit: 2871

the pixel electrode covers the protrusion pattern as claimed in claim 23 for achieving a wide viewing angle.

4. Claims 24-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishikawa as applied to claim 23 above, and further in view of applicant admitted prior art (AAPA)

Claim 24, the lacking limitation is such that forming color filter, common electrode and the pixel electrode faces the common electrode.

However, AAPA discloses (page 5, lines 9-19; Figs, 2A, 2B) that the common electrode (21) provided on the top substrate (20), and before the ITO processing, the color filter formed on the substrate (20), such that the color filter formed on the substrate and the common electrode formed on the color filter through a transparent conductive layer (ITO), and that is a conventional process to fabricate a liquid crystal display in order to obtain a color display. Concerning the limitation such that aligning the two substrate, and the pixel electrode faces the common electrode that is a conventional process, and Nishikawa also discloses (Fig.8B) the pixel electrode (6) faces the common electrode (61) and when assembly the liquid crystal display device, the two substrates must be aligned.

Therefore, it would have been obvious to those skilled in the art at the time the invention was made to arrange color filter for achieving a color display.

Claim 25, Nishikawa discloses (Fig.8B) that a vertical alignment film (56) coated onto the pixel electrode (6); a vertical alignment film (62) coated onto the common

Art Unit: 2871

electrode (61); and injecting a liquid crystal (70) into the gap between the two substrates.

Claim 26, Nishikawa discloses (col.1, line 50 – col.2, line 24) that the liquid crystal (70) has negative dielectric constant anisotropy.

Claim 27-28, Nishikawa discloses (col.1, lines 15 – 55) that the pixel electrode composes of ITO (transparent conductive layer), and the common electrode composed of ITO (transparent conductive layer).

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

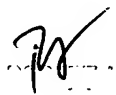
6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mike Qi whose telephone number is (571) 272-2299. The examiner can normally be reached on M-T 8:00 am-5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2871

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mike Qi  
April 22, 2004

  
SUSAN L. HANCOCK, Esq.  
Attorney  
1001 10th Street, NW  
Washington, DC 20001